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Scarborough and District
Archaeological Society

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for
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FOREWORD

Members will recollect that, at the Annual General Meeting on 29th April, it was decided to raise the annual subscription of the Society to 12/6d for adults and to make a free issue of the Transactions. I feel sure that Members, when they have read the 1963 issue, will decide that they are making a really worth-while investment. We have received so much important material for publication, ranging from pre-history to early 19th century farming systems, that four of the articles have had to be "continued in our next", i.e. completed in the Transactions for 1964! I am sure that members will realise the immense amount of work which these contributions represent and how important it is that we should be able to record and publish them.

The 1962/63 Lecture Session of the Society consisted of six lectures on the Dark Ages in Yorkshire by Mr. A. L. Binns, B.A., of Hull University and which had a special interest in view of the approaching milleniary celebrations of the foundation of Scarborough. After the Christmas recess, in addition to papers by members of the Society, we were fortunate in having lectures by Mr.C.W. Phillips, O.B.E., M.A., on the Archaeological Work of the Ordnance Survey, two lectures by Mr. L.P. Wenham, M.A. on Roman and Viking York and a lecture by Mr. Rex Wailes on Industrial Archaeology. Although there has been a small increase in the membership of the Society (from 87 to 90) the attendances at the lectures were somewhat disappointing, perhaps owing to the severe winter. It would, however, be an encouragement to the Secretary in inviting speakers if members would make the Society's meetings a priority for Monday evenings.

The Local History Group has continued its programme of well-attended lectures at the North Riding Training College and we are greatly indebted to the Principal and Staff for their help and hospitality. Contact has been maintained with the Hunmanby, Helmsley and Brompton Groups and an interchange of visits has been both enjoyable and informative.

We are most grateful to Mr. W. E. Jackson and Miss F.D. Gullen for arranging the excursion programme to Wade's Causeway (which will be the subject of our next Research Report), Rievaulx Abbey and the Dalby Turf Maze and the East Riding Tour, which were all well attended and most enjoyable.

The Garden Party, which was held on 6th July at the Scalby County Modern School through the kind offices of Mr. W. Bonas, was a great success both socially and financially, and will materially supplement the grant of £200 by the Council for British Archaeology towards our forthcoming Research Report. We were very pleased to have with us our President, Lord Derwent on this occasion. Lady Derwent performed the opening ceremony very gracefully.

In conclusion, I am sure that all members would wish me to render the thanks of the Society to Frank Rimington for his invaluable work as Honorary Secretary and to Miss Musto for hers in respect of the Local History Group, as well as to all others who have contributed to a very successful year. We are indeed fortunate in having so enthusiastic and capable a team of officers.

J. H. MARTIN.

(Chairman)

CAIRN-GROUPS & ANCIENT FIELD SYSTEMS IN NORTH-EAST YORKSHIRE

Raymond H. Hayes

On the high ridges or spurs of land between the dales, usually 700 to 1100 feet above sea-level, lie numerous groups of small stony cairns, with or without associated walling. These groups have been described by antiquaries from Hinderwell and Young in the early 19th century to Green, J.C.Atkinson and Elgee in more recent times. Elgee gives the most detailed plans and descriptions of several groups (1). He calls them settlement sites of the Urn people - Middle Bronze Age in date. This designation has been doubted by other archaeologists (2), and in the light of more recent research it is likely that they covered a longer period and extend well into the Iron Age, and even later in some cases.

The small cairns are usually between 8 and 20 ft. in diameter, often clustered around larger cairns up to 40 - 50 ft. in diameter; burial-rings or henge-type monuments are found amongst them and in some instances large enclosures 70 - 100 ft. in width. These cairns have been examined by several of the 19th century barrow-diggers, almost always with negative results, as was also the result of more scientific excavation by Paul Ashbee on Kildale Moor (3). He says..."The sepulchral character of many of these small mounds has never been proved in spite of the succinct name 'Tumuli' which labels appropriate groups on the O.S.maps".

No trace of cremation has been found in the great majority, though W.H. Lamplough claims to have found a cremation with pieces of a large cinerary urn in a 16 ft. diam. cairn near Cloughton, and R. Close found an unaccompanied cremation in a pit under a 20 ft. cairn in the centre of a group at Baysdale. On the limestone hills, where bone survives much better than in the acid moorland soil, human skeletons have been recorded in small cairns near Hawnby (4). They were associated with iron knives and ornaments of Dark Age (?) type. On the E. Yorks. Wolds similar groups of small barrows, usually composed of earth or chalk, contained Iron Age 'B' remains with food offerings in crude pottery urns (5). The Writer has assisted in the excavation of four of the small stony cairns; apart from charcoal (oak) and a few flint chips or flakes, no other relics were discovered. Two cairns had a shallow saucer-like depression underneath the stones, down to the rock in one instance. A broken tanged and barbed arrow-head was found in a small cairn at Hartoft, Rosedale (6).

On examination of the cairn-groups associated walling, dikes and enclosures can be seen. Notable examples are Crown End near Castleton, Danby Rigg and John Cross Rigg. Moor fires reveal far more than is shown on even the 6 in. O.S. maps and a fine example of this was the result of a disastrous fire on the Snilesworth Moors in 1959. The cairn-group on Iron Howe or Cow Ridge (Grid Ref.SE 5294), the local name for which is significantly 'Stone Folds', was shown to be much more extensive than previously realised. A survey in 1962-63 by J.G.Rutter, F.C.Rimington and the writer increased the number of known cairns from 80 to almost 300, and no less than $1\frac{1}{4}$ miles of walling was recorded, showing a complicated system difficult to interpret. There is a scatter of larger, 30 - 40 ft. cairns along the 1025 ft. contour-line across the ridge northwest of Iron Howe, 2 or 3 more lie on the southwest side surrounded by numerous smaller cairns. The main group is intersected by many irregular walls of stone, presumably gathered from the plots during cultivation and there are half-a-dozen lengths of straighter walling running NW-SE across the higher part of the ridge. Some of the plots are very haphazard, the outcrops of rock often defying all attempts to form a boundary. A long line of cairns straggles for half a mile alongside an ancient trackway to Cleveland. These cairns have very short and puzzling bits of walling, sometimes connecting two cairns or even incorporating three or four cairns in their line. Mr. J.G.Rutter thought there were at least three periods represented; first the large cairns, then the walling enclosing cultivation plots and finally more cairns constructed from the earlier walling. Two circles, 30 - 40 ft. in diam. may represent the perimeters of huts.(7)

Much soil erosion has taken place here, hence the bare rocky interiors of the plots today; it could be seen taking place in the Spring of 1960 when clouds of grey and black peaty ash blew in drifts from the site after the fire of 1959. This erosion would remove much of the original surface making hut-sites, post-holes, etc. difficult or impossible to find. Mr. C. W. Phillips, Archaeological Officer of the Ordnance Survey, examined this site with the writer in December, 1962, with a view to having it preserved as an outstanding example. He suggested a likely date of 750-800 B.C. for cultivation here as later the climate deteriorated. In all of our six or seven visits and during the survey, which took four of us five days to complete, only a few fragments of flint were found on the sur-

face, of which one triangular knife (broken) and one microlith alone showed signs of working.

Doubtless at one time the forest would reach 800 - 900 ft. in this locality, leaving only the ridge-tops available for cultivation, the small irregular plots would be worked with a hoe. Dr.O.G.S.Crawford (8) reports having seen a similar state of affairs obtaining at the present time in the Sudan where a semi-nomadic people, constantly moving because of the exhaustion of the pasture, leave behind after their ephemeral cultivation, rows of cleared stones, hut-circles,etc., strongly reminiscent of the Dartmoor plots described by Dr.Cecil Curwen in 'Antiquity', 1927, p.282.

On the opposite (E) ridge to the cairn-group described is another group consisting of 58 cairns in a line covering about half a mile from 875 to 1025 ft. with two straight lengths of bank and ditch, 40 and 60 yards in length. There are also some traces of walling but nothing like the extent found on Bumper Moor, Bilsdale West (Grid Ref.SE 5592). Here a very extensive cairn-group follows the ridge to the head of Ladhill Gill. Both round and long cairns with curious boat-shaped alignments can be seen. Much of the stone must have gone to make the Wether and Gimmer Cote intake walls to the east overlooking Bilsdale. Here in 1962 a good crop of corn was growing just over the wall dividing the modern farmland and the ancient cultivation plots.(9)

In the Scarborough area other cairn-groups can be studied, especially on Thompson's Rigg and Maw Rigg near Crosscliff, with smaller groups near Broxa and on Cloughton Moor. A detailed survey is being undertaken by the Society of all the groups in the area; it is hoped that this survey will throw much light on the problem of ancient cultivation. A recent excavation by Roland Close on Kildale Moor (NZ 6210) just north of a group of 60 or more cairns with walling, revealed no less than five hut-sites; they were 25 to 30 ft. in diam. with 3 ft. thick foundation walls in one case. All had shallow ditches, 3 ft. wide, surrounding the dwellings and inside the hut-circles were found paving, hearth-stones, saddle-querns and pottery sherds of Iron Age 'B' type. These are the first examples of dwellings of this period found in N.E. Yorkshire. The settlement was built over earlier ditches, the date of which are not yet ascertained.

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(6) By members of the Leeds University Anthropological Society,1952. Cairn destroyed by forestry plough.

(7) For plan of the Iron Howe site as surveyed in 1962-63 see "History of Helmsley", 1963, fig.V.

(8) O.G.S. Crawford, "Archaeology in the Field", 1953, 226-7.

(9) See "History of Helmsley", 1963, for list of cairn-groups, Appendix A and text, 36-42. Also report by Dr.G.W.Dimbleby on pollen analysis in the forthcoming paper on the chambered cairn on Great Ayton Moor, where there was cultivation when the Bronze Age burial rings were built. This monument stands in a group of 60-80 small cairns.

FARMING IN THE NORTH OF THE VALE OF PICKERING IN 1801

Muriel Musto, B.A., F.R.G.S.

The first and earliest details on crops and the areas these occupied are obtainable from the 1801 Acreage Returns. The information was returned by the incumbents at the request of Lord Pelham, Secretary of State for Home Affairs, so that an estimate of the country's food supply could be made. There was no compulsion to return these documents and though there is a fair distribution of returns from both Ryedale and the eastern end of the Vale, the records are in no way complete. The incumbents had difficulty in obtaining the information as the farmers were suspicious that it was connected with increasing their tithe payments or increasing their rents, and so in many cases the returns were filled in by estimation. As the request for the information was not made until the harvest was partly gathered in there were some inaccuracies. However, the relative proportions of each crop are likely to be correct if not the actual figures. The actual forms can be seen at the Public Records Office and the figures are shown in Fig.1. Some of the clergy added extra comments on their forms which add to the background knowledge of life in the area.

These statistics can be used in conjunction with the information supplied on farming in the area by William Marshall, who wrote the "Rural Economy of Yorkshire" in 1788 and concentrated particularly on the North Riding. He was born in the village of Sinnington and though he travelled widely, he returned to Pickering and wrote this volume in his retirement. Allowance must, therefore, be made in his work for his prejudices and his local interests. A second supplementary source of material is "A General View of the Agriculture of the North Riding of Yorkshire", written in 1799 by John Tuke for the Board of Agriculture, a private society founded to improve agriculture throughout the country. Tuke was a citizen of York, and took a more dispassionate and accurate view of the situation, though he too was trying to suggest measures that would bring improvements in the income of the farming community.

The total arable land recorded by the incumbents has been plotted against the total acreage of the settlement in the present day. The total was not given by the incumbents who were not asked about moorland, waste or even pasture. The plotting of the proportion of arable land brings out the difference between Ryd-

dale and the eastern or Marishes end of the Vale. This is because the draining schemes in the east had not yet been started and the Derwent had not been straightened. Tuke (1) describes the eastern area:-

> "The soil of the Marishes is chiefly clay, with some sandy loam, gravel and peat; the whole very low and very wet, in consequence of the river Derwent being very crooked, much choked, insufficient for the floods, and dammed up as above mentioned by the Mills at Malton, in consequence of which about 3,500 acres in the North Riding, and 7,000 acres in the East Riding, which if properly drained would be valuable, are greatly injured, or rendered totally useless".

This is reflected in the proportion of arable land, only Seamer and Irton in the east has slightly over 25% arable, the rest had slightly less. In Ryedale, the proportions were from a third to approximately three quarters. Salton had the highest proportion 73%, possibly as the area included a low hill of boulder clay which rises above the level floor of the Vale to over 100 feet O.D. as well as better-drained alluvial land. Helmsley, Harome and Kirby Misperton have approximately one third arable. The latter two are entirely low-lying parishes and would have had a high proportion as permanent pasture or meadow land, while Helmsley, though it includes higher and drier land, includes considerable moorland and woodland.

To consider the cropping pattern, the figures for the crops have been plotted against the total arable acreage, so that the proportion under each will be fairly reliable. (Fig.2)

In all the parishes, the main grain crop was oats. Oats are not a demanding crop and are normally grown on agriculturally poorer lands. These are usually the highlands and lowlands that are too wet and too cold and the growing season too short to maintain wheat or barley. There is no reason to suppose that the climate of the Vale was so damp and inclement as to preclude the growth of wheat, which in many parishes was the second and certainly the third grain crop. The Tees valley, to the North of Cleveland, was at the same time noted for its emphasis on wheat, showing that it could not have been the short growing season that was the difficulty. Tuke (2) was able to record that Ryedale was "remarkable for the quality and quantity of oats". One reason for the widespread growth of oats may have been the exceptionally high yields reputedly grown, 8 quarters per acre, though normally 6 quarters were accounted good.

Secondly, oats may have been confined to the more acid soils which were not properly limed to give a crop like wheat. Another reason seems to be given by Marshall, namely, that oats were grown for six or seven years in succession on all the newly-ploughed grassland in the west of the Vale, because wheat produced too much straw on this soil.(3) Twelve years later Tuke was still writing that:

> "for four, five, six or seven years successively (oats) may be met with in the almost inexhaustible fields of Ryedale, which are peculiarly adapted to the growth of oats"(4).

The long succession of crops, presumably showing little deterioration, gave a completely different rotation from that adopted in other areas. The harvesting and marketing of the oats seems to have been the economic reason for their dominance. The oats ripened earlier than other grains when a period of fine weather usually enabled the grain to be threshed out of doors and then sold to factors in Malton or direct to the West Riding. This early harvest meant that the grain travelled before the roads became difficult or impassable with mud. Tuke (5) wrote "No part of England produces worse roads." Oats brought in a lower price than wheat but were more certain of a market and possibly a little more than the ordinary price was paid as this would be the time when the stored wheat flour would be becoming scarce and the oats were used for "Bread in the West Riding".(6)

The prices paid in this area were much lower than those quoted by J.W. Rickman for the price of wheat at Windsor market in 1801 - £7.4.6 and in 1800 - £7.2.10 per quarter (7); lower also than the annual average price of £5.19.6 quoted by Lord Ernle.(8) The Rev. Cayley, curate of Wykeham, added notes to his return of 1801 and quotes wheat as being "not less than from £3.4.0 to £4.4.0 and oats £1.3.0 to £1.6.0 a quarter or a shilling a stone." Though oats were the main crop, in two parishes, Harome and Wykeham there was a greater acreage under turnips. The percentages were lower in the east, Seamer and Irton had 27%, though this increased westward so that at Snainton it was up to 42.5% and at Thornton-le-Dale 44.8%, but the western end had a still higher proportion, apart from Harome where the percentage was 31.3%.

Wheat was the second grain in all the villages except East Ayton where it was only 21% of the total arable compared with barley, 25.1%: in most of the

area it ranged from 20-30%. Brompton had the lowest percentage, only 14.1%, and Helmsley 16.5%. No real differentiation can be seen in the wheat figures. Wheat was the most desirable of the bread grains and there were no physical limitations as wheat needs a rich and fairly heavy soil and does not do well with more than 40 inches of rain.

According to Marshall, winter wheat was grown, apart from a little April sown wheat introduced from the Whitby area.(9) He accounts for the decline in rye in favour of wheat, as a result of the introduction of liming of the land. Wheat was a much more satisfactory bread grain and the Napoleonic war had meant a shortage of food generally and a rise in market prices. Marshall suggests that a good deal of the wheat was sent to Whitby, presumably to be made into ships biscuits for victualling ships for the Navy. The wheat was cut by women with sickles, there were usually three women and one man making a "sett" and they could cut an acre a day.(10) The threshing of wheat was done indoors in the barn, where the upper storey was thirteen feet high to allow the flails to be used. The winnowing was done by a "Machine fan" which cost £5.5.0 and had been introduced about 1753 and was in common use from 1773 or 1778 onwards.(11) This indoor threshing suggests that then, as now, the grain was not dry enough to lead in from the fields until the winter had set in.

The third grain was barley, the percentage in the whole Vale was low but there was a slightly higher percentage in the east of it. Seamer and Irton had 22% and in East Ayton the amount was 25.1%, only .1% less than oats which were the first ranking crop. In the lowland Ryedale parishes, Sinnington had only 2.8%, Salton 4.6% and Kirby Misperton with Barughs Ambo Habton and Ryton had 2.4%. Barley according to D.W. Thomas in "Acreage Returns of 1801 for the Welsh Border" was "outstanding for its ability to mature in a short growing season, and its sensitivity to mineral deficiencies and soil acidity and its intolerance of heavy clay soils." (12) Strangely, the parishes with the highest proportion have considerable areas of wet and peaty soils but the barley must have been grown in the drier lighter soils, the Reddish Brown sandy loams of the Calcareous Grit backslope. Most of the barley was used for brewing or mixed in with the other bread grains to make a cheaper, inferior bread. Around 1680, the barley had been malted on the farms before being sold, and bracken from the commons, used for the fires, was cut on a fixed day so that no one should take

PROPORTION OF ARABLE LAND IN 1801

Fig. 1.

MAIN CROPS IN 1801

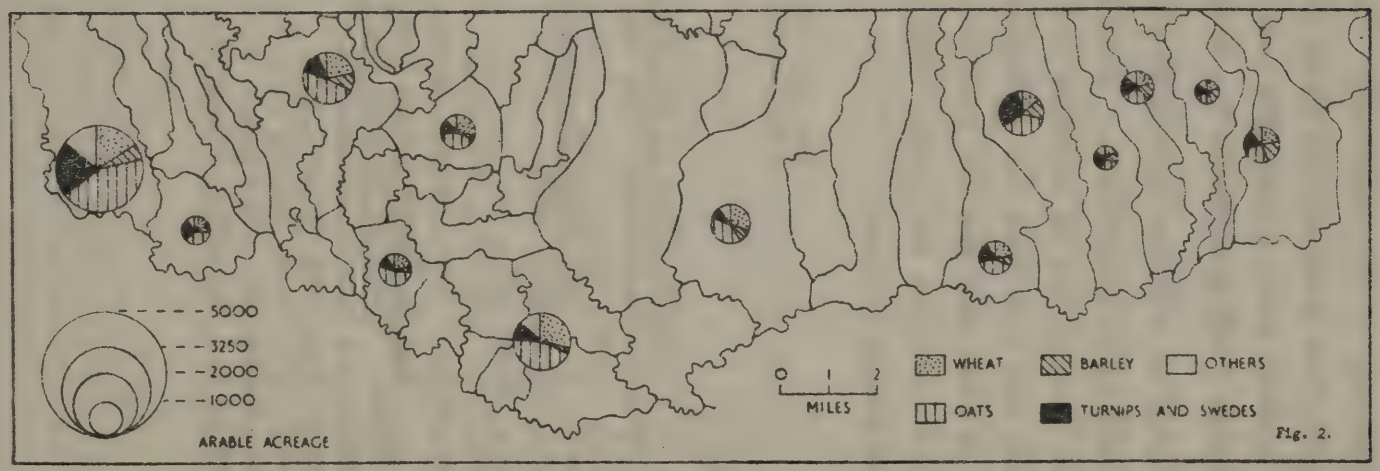

Fig. 2.

more than their share.(13) By 1801 public malt-houses existed and the barley was sold directly to the maltsters. The deciding factor in growing the crop seems to have been economic and those villages near Scarborough grew most while there was a small rise in quantity near the towns of Helmsley with 5.3% and Kirby Moorside 10.1% presumably for making beer for the larger populations.

Farming in the area must have been improved as rye and maslim were only grown in negligible quantities. East Ayton, Wykeham and Snainton grew none. The highest acreage was in Helmsley where it occupied 5.3% of the arable land and was only .2% less than the acreage under barley. This would be the crop that grew on land that was too poor for any more demanding and profitable crop. It would have occupied the intake land and the more marshy acid land that was not used as summer pasture.

TO BE CONTINUED.

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THE MEDIEVAL PORTS AND TRADE OF NORTH-EAST YORKSHIRE

Bryan Waites, M.A., F.R.G.S.

The sea played a conspicuous part in the development of the North East, especially in the earlier centuries. The coast had been a convenient landfall for the predatory Saxons and Scandinavians. The latter, especially, during the 8th and 9th centuries ravaged villages and monasteries alike, establishing a reign of uncertainty and violence along the coast.(1) When their inclinations led them to more sedentary pursuits and settlement replaced marauding it was the North-East coast which again figured prominently.(2) The traditional connections with Scandinavia remained. A great deal of trade between England and Scandinavia before the Conquest took place along this coast.(3) Even in the 14th century, Norwegian fishermen and merchants still occupied a high place in the greatly expanded trade of this coast.(4)

But, besides the nearness of the North-East coast to the Continent - historically and physically - certain other factors emphasised the importance of the sea as a regular and usual means of communication. The inhospitable moorland which extends inland from the coast, rising ever higher towards the Cleveland Hills, acted as a great barrier to land travel in medieval times. Of course, "barrier" must be used with caution because very often the pack-animals of the medieval traveller were capable of penetrating localities which today might be inaccesible to the motor-car. The influence of physical factors is, in fact, very much determined by the technical environment of the particular period. Even so, there are several indications that land travel was difficult in the area. In 1323 the monks of Whitby complained of the "barrenness of the soil", the incursion of the Scots, and the inaccessibility of the Abbey (5); as late as 1453 in petitioning for the appropriation of Hutton Buschel church they renewed their complaints:

> "...the said monastery is situated by the sea-coast and frequently exposed on all sides to hostile attacks and also because of the long and dangerous routes the place is difficult of access for men and draught animals by land; expenses are great and continuous. Repairs to the church nave of the said monastery, pending now and in the future, are manifestly and notoriously needed and for the reason they piously and deservedly stand in need of help..." (6)

Great laymen, too, might have found the same difficulties. Sir Richard Cholmley, for example, apparently used his ships in the administration of his

more inaccessible estates along the coast.(7) Overall, the sea was the main artery in the trading activities of the North-East. But the coast itself was rocky and dangerous. Harbours were few,and far between: from the Humber to the Tees the only ports were Scarborough and Whitby. The scarcity of safe anchorages served to emphasise the value of these places as ports of call in rough weather as well as the only outlets for a considerable area inland - mainly the eastern half of the Vale of Pickering and the Coastal plateau.

The effect of the wars between England and Scotland during the late 13th and the 14th centuries had been two-fold. While the monasteries complained about Scottish devastations(8) and lay landowners also reported much of their land uncultivated because of similar incursions,(9) the merchants were reaping a profit and the ports were growing. Calamitous to one section, the Scotch Wars were beneficial to another. Whereas many inland fairs and markets suffered losses in trade and profits, especially in the Vale of York, the ports developed as commercial centres. For many of the King's supplies were bought in the North-East and transported by local merchants to Berwick or Newcastle.(10)

It was in this coastal trade that Roger le Carter, whose successors were later to rise to prominence in Scarborough, began to accumulate his wealth. In 1298, for instance, he transported 458 quarters of wheat and 112 quarters of oats to Newcastle on one journey. At the same time, Robert de Barton, John de Selby, John le Heer, and many others took part in the trade.(11) Besides such direct advantages to local merchants, the importance and value of the trade attracted merchants from elsewhere, who brought increased traffic to the ports. The Newcastle to London coastal trade, which flourished especially in the 14th century and later, was an equally effective stimulus to the development of the North-East coast. London merchants are mentioned in the Customs Accounts of both Whitby and Scarborough,and in the latter at least one London merchant, Thomas Castell, owned land in the town.

The 14th century coal trade took a predominant place in the coastal trade from Scarborough and Newcastle southwards to London. The Whitby Abbey accounts for 1394-95 mention cauldrons of coals arriving from "a ship of Shields", "one ship from Newcastle", "William Rede of Sunderland", and so on.(12) Sometimes it appears that ships from other east coast ports had a share in the trade. Thus, the accounts mention "a ship of Lyn" and "a hoie of Northfolk" importing coals to

the Abbey at Whitby.(13) Even merchants from inland towns, such as Thorne in the West Riding, participated; in 1321, for example, a ship of Gravelines in Flanders attacked Walter Rayny of Thorne between Fyling Wick and Scarborough. In his ship were eighty cauldrons of sea-coal of the price of 20 marks, 42 stone of cheese and other goods, which were seized.(14) This trade, then, was especially instrumental in adding to the importance of the North-East ports.

But the area had a trade of its own. The ports did not derive their importance only from the coasting trade. Two main avenues of trade were evident. The first was the River Tees and the second the Vale of Pickering. Both allowed inland contacts to be easily made by turning the flanks of the moorland which stretched between them. The Tees enabled the Cleveland Plain to have trade relations with a wide area: "there ought to be, and has been from time beyond memory, common passage of ships and boats and a common fishery for all from Thormotby to the sea..."(15) Yarm, seventeen miles up the river, was the chief port of the region. It had an hinterland in the 14th century which included the Pennine foothills and the Vale of York, far south of Northallerton. Earlier still, in 1205, Yarm had been the most prominent port in the North-East despite its inland situation.(16) The Fifteenth on merchants goods taken in that year gives a good idea of the relative status of the ports. Yarm contributed £42.17.10d; Scarborough £22.0.4½d; Coatham 11.11d; and Whitby 4.0d.(17)

But Yarm's predominance was not to last. Its inland position was a disadvantage and during the late 13th and 14th centuries, ports such as Coatham, which were nearer to the sea, began to overtake Yarm. Thus in 1341, when the goods of the burgesses of Yarm were valued so that a fifteenth could be taken from them, they totalled only £60.10.0d. But at Scarborough the burgesses' goods were valued at £246.0.0d and those of Whitby at £150.5.0d.(18) It was obvious that the latter ports had made tremendous strides forward whilst Yarm had declined. By 1341 Yarm seems to have become more important as an inland market than as a port.(19) Its splendid site always assured it of some importance as an economic centre, however. The roads from Catterick and Thirsk united east of Yarm and then crossed the Tees at the only bridging point between Cleveland and Durham. Yarm commanded this crossing point.

Even at the height of their prosperity, however, none of the North-East ports entered the same category as Hull and Newcastle. In 1205 these great ports

had contributed £344.14.4½d and £158.5.11d respectively to the subsidy, far larger sums than Yarm or Scarborough.(20) And, although the influence and importance of Whitby and Scarborough rose sharply in the 14th century it was always far below that of Newcastle and Hull.

Scarborough had distinct advantages over Coatham and Whitby. It was a convenient collecting centre for the products of the Vale of Pickering, especially for the villages along the northern fringe of the Vale. The illustration on the opposite page shows a hinterland of Scarborough in 1298. It has been drawn from information about purchases of corn in the district for the Scotch war, and transported from the port.(21) Of course, the map tells only part of the story of Scarborough's hinterland and must be used with reserve. Even so, it has many features of interest which illustrate the port's growing importance. Corn was carried there from as far away as Kilham and Eastburn, over 25 miles to the south. Even Settrington at the western extremity of the Wolds delivered corn to Scarborough by pack horse and carts.(22) This was rather remarkable considering the influence of Beverley, Hull and York merchants in the area. The Assize Rolls (1361-64) show that at least in the wool trade the sphere of influence of Beverley merchants extended into the Vale and was strong in the Wolds.(23) The York and Hull wool merchants had an even greater purchasing area, which embraced the whole of the Western Vale of Pickering. Wool was, in fact, transported from the Vale over the Wolds near Malton and thence to the headwaters of the River Hull at Wansford and so by the navigable water to Beverley and Hull.(24) But the indications seem to be from the corn purchases of 1298 that the predominance of Beverley, York and Hull merchants was limited to the wool trade and that in general trade Scarborough merchants held their own over quite a large area including the Vale of Pickering and the Wolds.

Certain physical factors emphasised Scarborough's importance in the area, and provide some explanation why its hinterland should be so large. It was situated at the eastern end of the Vale of Pickering. Though the centre of the Vale was occupied by the swampy ground fringing the Derwent River, the northern and southern peripheries were very fertile and highly settled regions. An examination of the Lay Subsidy (1301) indicates that in population and wealth this area far exceeded any other in North-East Yorkshire.

Although so rich and productive, the Vale was somewhat isolated. York

PORT HINTERLANDS:
YARM AND SCARBORO'
as shown by corn purchased for the Scotch Wars
places sending corn to Yarm (1301)
places sending corn to Scarboro' (1298)
over 400 feet
COATHAM
River Tees
YARM
WHITBY
SCARBOROUGH
YORK

was more than twenty miles away and Hull was nearly thirty miles. Though merchants would be willing to trade for wool in the area it was unlikely that they would be drawn there for other less valuable commodities such as corn. Adam Pund of Hull, John de Gisborne of York, Hugh de Mitton of York and William Chamberlayn of Beverley - all great wool merchants - were frequently seen in the district.(25) No word however is heard of merchants from the same towns trading to the same extent in other commodities.

It was Scarborough which handled such goods (and later took over some of the wool exports). It was eminently well situated for the task. The line of villages to the north of the Vale were connected by a road which ran eastwards to Scarborough. Two ways from the south, linked the town and Wolds district.(26) Both were the only easy ways across the marsh and lakes of the Eastern Vale. One followed close along the coast and the other along the drier gravel areas between Seamer and Staxton. North of the town, an area of fertile Boulder Clay flanked the barren sandstone of the Moorlands. Here another series of villages had been sited (Cloughton, Burniston, Scalby, Newby) which found their natural centre at Scarborough, only a few miles to the south.

With such fundamental advantages Scarborough increased in importance over the other ports in the area. It had a wooden pier at latest by 1225, and a more permanent quay by 1252.(27) Coatham had no harbour; the sand was its dockyard.(28) Though well placed to engage in the trade entering the Tees, its position was very exposed and the roadstead it provided negligible. Even so, the salt industry and the nearness to the heavily settled Cleveland Plain encouraged its growth. Whitby was situated in Eskmouth and allowed more shelter for ships. In addition it was the largest and focal town of the Coastal Plateau, which was moderately settled. The Esk Valley too was the only easy route across the Moorlands to the Vale of York beyond.(29) Though Whitby Abbey, which was Lord of the town and port, attracted and itself produced much business, Whitby did not really flourish as a port until the 14th century.(30) Its hinterland was restricted. The Sheriffs Accounts show that when Edward I purchased his corn in this area the cartage was never considerable. Lythe, for instance, which supplied 100 qt. oats in 1298 was only four miles from Whitby.(31)

TO BE CONTINUED.

REFERENCES AND NOTES

(1) e.g. the destruction of St.Hilda's monastery at Streoneshal (Whitby).
(2) Place-names are a valuable indication of this..."the Riding underwent in the ninth and tenth centuries a Scandinavian settlement of exceptional thoroughness, which has left innumerable traces in the local nomenclature of the present day." A.H.Smith, Place Names of the North Riding of Yorkshire. (1928) Introduction.
(3) Norwegian settlement was heavy in Cleveland and along the coast in Whitby strand wapentake. The Danish settlement was concentrated mainly in the Vale of Pickering. Many place-names contain later elements which indicate continued connections with the Scandinavian countries at least to 1000 A.D. The pretensions of Harold Hardrada and Testig as late as 1066 demonstrate the strong connections still existing even then.
(4) See Customs Accounts P.R.O. E 122/57/1. Especially Norwegians at Hull and Ravenser in accounts for similar period. The trade was not one-sided: even in 1415 the Bailiffs of Whitby were instructed that, "no fishing for one year is allowed to the island parts of the realms of Norway and Denmark, especially Islande". C.C.R.(1415) p.297
(5) Mandate to appropriate church of Seamer. Reg.Papal Letters II, (1305-42)
(6) York: D.Reg. Register of Archbishop William Booth fo.224.
(7) A suggestion by Gaskin in The Old Seaport of Whitby (1909) p.238.
(8) C.C.R. (1328) p.280. Reg. Papal Letters Vol.II (1305-42)
(9) At Settrington, for example, P.R.O. C.134/82. See also Cal.of Inquisitions.
(10) For corn bought in Yorkshire in 1298 see P.R.O. E.101/6/32
(11) P.R.O. E.101/6/38 and 12/8. Corn expenses (1304) and details of carriage.
(12) Vol.II, pp.612-613. Whitby Chartulary.
(13) loc. cit.
(14) C.I. Misc. (1321) p.137.
(15) C.P.R. (1358) p.157.
(16) Yarm shipped lead from the Richmondshire mines in 1182 Pipe R.28 Hen.II (Pipe Roll Soc.) The principal exports seem to have been corn and agricultural products in later centuries. (C.P.R.1338-40 pp.198.201.) This is to be expected from a port whose hinterland was the Vale of York.
(17) Document given in N.S.B. Gras, Early English Customs System, pp.221-222.
(18) N.I. pp. 243-245.
(19) The value of its burgesses' goods was, for example, comparable to several large market towns of the North-East, e.g.Northallerton £46.0.0d; Malton £33.0.0d.
(20) Gras op.cit. pp.221-222.
(21) P.R.O. E 101/6/38.
(22) ibid. "from the Rector of Settrington 80 quarters of oats carried to Scarborough through twelve leucas at a cost of 16/8."
(23) Thus "William Tirwhit of Beverley bought from John of Foxholes 2 sacks, each sack 30 stone and each stone 12 pounds, in 1361; and of John Stut of Weaverthorpe and of Thomas of Nawton 1 sack..." Y.A.S. Assize Rolls (1361-65) in Sessions of the Peace. Vol.100, p.16.
(24) P.R.O. E.372/183/47. Pipe Roll for 1338.
(25) Wool merchants on a national scale: they had been summoned to Edward III's council of merchants. Y.A.S. Sessions of the Peace. Vol.100. p.xliv.

(26) The Bridlington Priory grange at Burton Fleming on the Wolds sold much of its corn in Scarborough. York: D. Reg. R.H.60.
(27) C.P.R. (1225) pp.2.5.8. etc.
(28) G.C. Vol.II p.120. The Canons' ships were free from toll at "the port of Teyse and at the sand (sabulum) of Coatham".
(29) Y.A.S. Monastic Notes II. Vol.81. p.51.
(30) Gaskin op.cit.
(31) P.R.O. E 101/6/38.

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ABBREVIATIONS

C.C.R.	Calendar of Close Rolls.
P.R.O.	Public Record Office.
York:D.Reg:	Diocesan Registry, York.
W.C.	Whitby Abbey Chartulary.
C.I.Misc.	Calendar of Inquisitions, Miscellaneous.
C.P.R.	Calendar of Patent Rolls.
N.I.	Nonarum Inquisitions.
Y.A.S.	Yorkshire Archaeological Society.
G.C.	Guisborough Priory Chartulary.
C.Ch.R	Calendar of Charter Rolls.
Rot.H.	Rotali Hundredorum.
N.R.R.S.	North Riding Record Series.

LANDSCAPE HISTORY AT BROMPTON BY SAWDON

J. H. Rushton, B. Sc.

The landscape of the countryside around Scarborough was different before the 18th century from that which confronts us today. Yet careful study of the modern landscape can reveal features which derive from all periods of local history. The most rapid and sweeping landscape changes came during the inclosure movement of the 18th century, and a first classification of existing features might divide them according to their pre-inclosure or post-inclosure origins. By combining surface observation with documentary research, more precise dating becomes possible, and numerous new historical problems are raised. This study of Brompton-by-Sawdon illustrates this kind of local research.

For several hundred years prior to 1760, the parish of Brompton-by-Sawdon was divided into five great tracts of land, each for a different purpose, and subject to different methods of management and forms of ownership. These can be described as the open fields, the ings,the low commons, the high commons, and the old or ancient inclosures. At some time before the 16th century, another tract - the woodland - ceased to be of sufficient importance to merit special treatment. This five or six-fold division of parish land was typical of the north side of Pickering Vale,and of the coastal areas north and south of Scarborough. It is associated with the progressive colonisation which continued during and after the Anglian and Scandinavian migrations. So far as can be told, it ignored the principles of land-use adopted by earlier settlers. It married a particular mode of agriculture, and an evolving social system with the conditions of terrain in which generation after generation of colonisers found themselves.

Colonisation meant more than the settlement of new communities in villages. In its widest sense, it required the modification of the surrounding terrain to serve the community needs. Social, physical and technical factors combined to decide how the landscape was changed, over long periods of time. The final result can be inferred from the documents of 18th century inclosure. Indeed, where inclosure-maps (or earlier estate maps) have survived, inference is at a minimum. The Brompton-by-Sawdon inclosure-map is not known to have survived, so that in this case, the pre and post inclosure lay-out of the parish have had to be reconstructed from descriptions given in the 1760 inclosure award. (See Maps 1 & 2)

Colonisation can be considered in relation to each of these broad divisions of the parish. First, it meant the settlement of people in villages, and the gradual establishment of definite property boundaries for the garths and estates within them (the ancient inclosures). Over a longer period, colonisation meant the extension of the cultivated lands and meadows (the open fields and ings), which provided the basic crops. Their extent broadly decided the scale of population which a parish could support, during eras of little trading. The extent of the meadow land may have been more decisive, for it governed the quantity of hay available for Winter stock feeding. The relative development of the different communities in Pickering Vale may closely connect with the amount of meadow land each possessed.

A third facet of colonisation was the gradual reduction of the waste lands and commons (High and Low Commons). This resulted from the expansion of the open fields or ancient inclosures. It cannot be stated with accuracy when the open field land first reached the maximum which we find recorded in the 18th century, although the 13th-14th centuries may represent an early peak. From the 12th century onwards, sheep-wool production, for export from the parish, played a significant part in the village economy. This may have operated to restrict further expansion of the open fields as it may have brought about the return of some land within the open fields from arable to pasture. The development of cattle-raising on the low commons, and on the large low-lying pastures agisted in Pickering Vale during the later Middle Ages is uninvestigated,but may have withdrawn ing or carr land from the service of the villages and diverted its produce to the monasteries. It is not clear whether associated drainage improvements such as the "Friar's dykes" can be attributed to monastic activity or to the manors which preceded the monastic estates along the Derwent.

Numerous problems arise when we consider the influence of these forces on the landscape. Development within one parish tract was closely connected with changes in the others. For convenience only, we shall discuss them separately,here

The Village Sites.

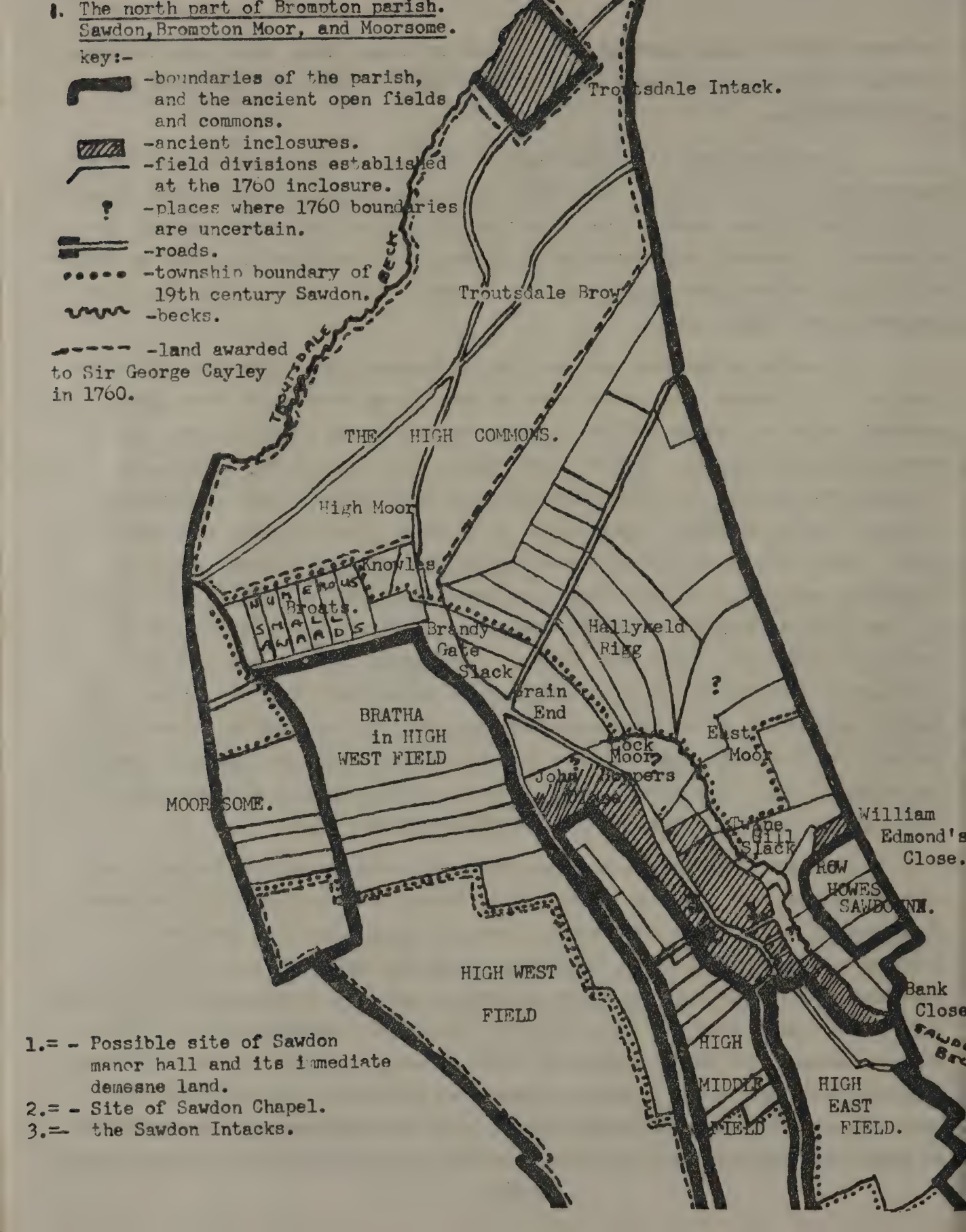
Brompton parish includes two quite distinct early settlements - Brompton and Sawdon. The "ecclesiastical" parish included Snainton with its outlying independent manor at Foulbridge. Somewhere within this area was the "lost village" of

Westhorpe and the names Eastanby, Malpas (and at a much later date Swine Brompton) have been taken to mean recognisably distinct units of some kind within the township of Brompton.

The excavations at Wykeham suggest that the dwellings erected during the earlier phases of the Anglian settlement of local villages need not relate closely to the later village layout, though they do fall within the area of ancient inclosures. Temporary settlements and a certain trial and error approach to the new and largely untamed countryside might be expected to precede the more formal organisation of village land.

The site of Brompton conforms to the standard generalisations about the location of villages. The older areas of the village stand just above the 100 ft. contour, above the damper shallow slope to the south, and below the more sharply rising hill-slope above. Somewhat strikingly, two sides of the village, one including the church, the other containing the castle-site, stand on separated blocks of lower limestone, separated by an alluvial gulley running into Brompton Dale. Each derives an adequate water supply from springs breaking out of the limestone, each artificially formed into large ponds, one associated with a mill, and the other a fishpond. The physical division of these two sites, each adequate for settlement, gives some support to the theory which associates lost "Westhorpe" with the Church site, and Brompton or Eastanby with the other. The Anglian derivation of the place-name Brompton, and the Scandinavian extraction of Eastanby and Westhorpe might suggest that later settlements were planted alongside the original one. The multiplicity of manors within the parish at Domesday times is a feature linked elsewhere with developments of this kind.

The siting of Sawdon is more difficult to understand, particularly in view of the uncertainty as to whether that township ever possessed its own open-field system. Certainly the tract of potential open-field land broadens in Snainton and Brompton in terms of geology, soil, and the sheer size of these parishes. The slope above Brompton is gentler, and the significantly named "Grain-end" is far higher than the known limit of open-field cultivation in some other Vale parishes. Yet Sawdon lacked the readily available water of its neighbours. Until quite recent times, water was transported by donkey from the stream well below its 400 ft. site. Similarly placed becks in neighbouring parishes failed to stimulate into existence communities similar in scale to that of Sawdon, though


1. The north part of Brompton parish. Sawdon, Brompton Moor, and Moorsome.
key:-
-boundaries of the parish, and the ancient open fields and commons.
-ancient inclosures.
-field divisions established at the 1760 inclosure.
-places where 1760 boundaries are uncertain.
-roads.
-township boundary of 19th century Sawdon.
-becks.
-land awarded to Sir George Cayley in 1760.
Troutsdale Intack.
TROUTSDALE BECK
Troutsdale Brow
THE HIGH COMMONS.
High Moor
Knowles
NUMEROUS SMALL ENCLOSURES
Broats.
Brandy Gate Slack
Hallyfield Rigg
Grain End
BRATHA in HIGH WEST FIELD
MOORSOME.
Cock Moor?
East Moor
John Hempers
Tape Gill Slack
William Edmond's Close.
ROW
HOWES
SAWDOWN.
HIGH WEST FIELD
Bank Close
HIGH MIDDLE FIELD
HIGH EAST FIELD.
1.= - Possible site of Sawdon manor hall and its immediate demesne land.
2.= - Site of Sawdon Chapel.
3.= - the Sawdon Intacks.

2. The south part of Brompton parish. Brompton, its fields, low commons and ings.

key:-(as above)

■■■ -places where open field bounds uncertain.

(road changes at the north and south of the town during the 1760 inclosure make several boundaries dubious)

A.= -Low Hall, Brompton (John Cayley's in 1760)

B.= -Castle site, Brompton. (the mill & millstream run south of it)

C.= -High Hall site.

D.= -Church (with fishpond running to south)

E.= -West Close (W.Cossin's in 1760) (known as Swine Brompton in the early 19th century)

F.= -Sir George Cayley's Low Hall Farm in 1760. (also known as Malpas)

G.= -Brompton Butts.

H.= -farm lately known as "Manor House". on the Green of Brompton.

I.= - Hungate.

J.= - Gallows Hill.

K.= - Dolman Ings, given to the Priory of Bridlington by 1328, reserving common of pasture after the hay was carried. The Langley family bought it from the Constable family in 1751. They bought it from Richard Dolman in 1637. Previously it was called Canon Wraye.

L.= - The area emparked by the Cayleys in the 18th century.

the monastic sites at Malton Cote and Wykeham Grange have similarly difficult situations, whose development their monastic owners may have transformed. The possibilities remain that in the Middle Ages, Sawdon developed primarily as a forest or herding community, possibly in some connection with the Royal Forest of Pickering.

It is perhaps also significant that Foulbridge in Snainton is the most easterly of the early "marishes" manors, and that Brompton failed to develop an offshoot riverside community, like its neighbours to the west.

The Open Fields

We can visualise the steady expansion of field land at Brompton as the expansion phase succeeded the initial settlement, as population grew and new plough-teams cleared back the waste, flatt by flatt. Periods of social disorder might inhibit this for a while but the land once broken would be easier to recover. Each arable addition was taken into the great open "Fields", far larger than most "fields" as we think of them today. These fields were themselves the units of crop-rotation. The case for and against an early development from 2 field to multi-field systems on British soil has been argued at length by historians. A study of the field names here might reveal some evidence of the progress outwards from the village, and answer such questions as whether it was first southwards or northwards.

By the time of the Domesday record, four ploughlands, and six ploughs are known to have existed at Brompton. Yet this record was taken when the township was recovering (rapidly, as indicated by the pre and post Conquest valuations) from a period of disorder and destruction. In the early 1320's, Sir John Moryn, the largest tenant at Brompton held a house, 18 tofts, 34 oxgangs of arable and meadow, 50 acres of arable, 15 acres of meadow and 30 shillings rents in Brompton, Sawdon and nearby Snainton. This was a relatively small part of the total property but it hints at the development which two centuries had brought about.

By the 18th century, the open fields amounted in all to some 1985 acres. They were eight in number, each with its own name:-

High West Field	(844 acres)	Low West Field	453 acres.
High East Field	(356 acres)	Low East Field	
High Middle Field	(277 acres)	Eastanby	
Row Howes	(53 acres)	Brackenholme Field	

These huge areas were inclosures in the sense that ditches and temporary fencing were erected around them. There is some evidence that more substantial earthworks permanently bounded the northward limits of the high fields, separating them from the moorland and its animal life.

Within these "Fields" were smaller areas, known as flatts or furlongs, separated from each other, not by hedges or fences, but by unploughed headlands and balks, on which the plough could be turned and access gained to the ploughed land. These flatts probably consisted of clusters of strips, the crop of which was once individually owned but its cultivation collectively managed. When the crop had been lifted, the flatts would be pastured by the animals of the whole community. Some of the flatts and balks bore names, not all of which are now known. This list is derived from several sources:-

in High West Field - Longlands, Harry Brown Fold, Bratha, Wranglands, Dale Bottom, Lings.
" High East Field - Lyngs, Shurdale, Gallow or Galleyhill, Caingates, Stone Cross.
" Low East Field - East Rise, Young Beast Syke, New Yat, Wawernaw, Small Ings End, Geisah Coat Head, Waywinholme.
" Eastanby - Eastanby against the gates.
" Brackenholme - Long Brackenholme, Pit-leys, Bull-pieces, Mark math, Short Brackenholme.
" High Middle Field - Stonecross, West Hills, Short Crook, Long Crook, Roods, Lings, Geisah.
" Low West Field - Rie Topping, Hopkin Nook, Long Holme, Short Holme.
" Unidentified fields - Heightagrass, Under Sawdon, Short Crookes, Firth, Liver Dykes, Bosslets, Fawfleets.

Within the flatts, were the lands, strips or selions, individually owned in such a way that one man's strips might be scattered throughout numerous "flatts" in several of the "Fields". Frequently, they took names from their owner, or some previous owner, whether individual or institutional. A list of socage tenants holding property from the Crown at Brompton and Sawdon in 1651, gives these examples:

in Brompton - Dovelands, Bartonlands, Bridekirklands, Fosterlands, Wardropelands.
in Sawdon - Dovelands, Sharpelands, Fosterlands.

Fosterlands might refer to a forester's holdings, as "Kirk" lands and "St.John's lands" in Snainton meant properties belonging to the Chapel and to the Knight's Hospitallers of St. John respectively at some date in the past. There were "Parsonage" and "Fryer" lands at Brompton and Sawdon.

Brompton's open field development had moved outwards to the parish boun-

daries, themselves probably established as this development took place. At several points along the Wykeham-Brompton boundary, the sharp right-angle turns, suggest the abutting of one parish's flatts on those of another. The open fields also spread northwards over the hillslopes (the High Fields and Row Howes) and southwestwards towards Ruston Beck. Here, an exceptional geological development, a deposited fan of postglacial sands and gravels allowed the development of a second field system (the Low Fields, Eastanby and the aptly-named Brackenholme). Consequently Brompton-by-Sawdon acquired more "Fields" than many other Vale parishes This may have assisted the complex layout of the townships, and fostered the emergence of Brompton's several "manors".

The Ings

Brompton Ings occupied a loop in the old course of the River Derwent. When William Chapman, the engineer made his report on the Derwent drainage in the 18th century, his map showed much of Brompton Ings as subject to annual flood. (The first survey was undertaken three years after the completion of Brompton's inclosure Not infrequently, the floods were uncontrollable, with resulting crop-damage. At what period, and to what extent, water-control by draining had enabled the conversion of marsh to valuable meadow in Brompton isn't known. Elsewhere in the Vale, drain-systems were well-established by the 13th century. Domesday Brompton boasted only eight acres of meadow, but extents of two centuries later reveal much wider areas producing the essential hay. Bridlington Priory acquired a 30-acre meadow, within the common meadow of Brompton from its manor-lord, and built a bridge to convey the crop across the Derwent. (Canon Wraye)

The Ings amounted to 212 acres. By the 18th century a well defined system of ditches subdivided them into blocks and the substantial Howl Ings Dyke guarded their eastwards flank. Possibly these blocks were also subdivided into strips. Such ing-strips remained in existence at Pickering well into the twentieth century. At all events, owners of oxgangs, held not only arable plots, but attached to them rights to so-many-days' mowing and the pasture for so many animals (beastgates) in the common meadow. With these rights went responsibility for ditch maintenance, not only in the meadows but also where springs broke out near the arable fields. One of the few extant records of Brompton's manor court recalls that: in 1745 the byelawmen presented 2 men for failing to fulfill their responsi-

bilities at the "Brekonholm" dykes, 3 men at the Ings dykes and 4 men for the West Carr. Fines ranging from 2d to 4d were imposed.

The blocks of ing-land are known to have had several names but only Dolman Ings, Sandpan and Long Ings have survived. The Long Ings were almost half the total area. Shortly before the 1760 inclosure, and well before the extensive improvements brought about under the Muston & Yedingham Drainage Act, Sir George Cayley, and Boynton Langley's father, joint lords of Brompton Manor, carved the "New Cutt" through Brompton Ings and presumably through lower Wykeham as well. This remarkable action seems largely unrecorded but must have pioneered drainage development in the Vale. Each lord at the same time seems to have acquired a new "old inclosure" in the Ings and Langley undertook responsibility for scouring the Cutt and maintaining its banks.

A final problem is posed by the remoteness of Sawdon from the water-meadows. The property deeds of some Sawdon yeomen include pieces of meadow but their location is unknown. The term may have been applied to the better pasture, capable of producing reasonable hay, close to the village. On the other hand, it is significant that the larger Sawdon owners were able to enforce claims to awards of land in the Ings at the 1760 inclosure.

TO BE CONTINUED

A GEOLOGICAL GUIDE TO THE IRON DEPOSITS OF THE SCARBOROUGH DISTRICT

PART I by P. C. Robinson.

The mineral iron has long been noted as one of the most important minerals in past and present industry. Its occurrence and location has been not only the cause of ancient and modern industrial wealth but quite frequently the deciding factor in the siting of settlements, towns and large industrial centres throughout Britain.

Iron (Fe) is only exceeded in abundance as a metallic mineral by aluminium. Approximately 4.6% of the earth's crust is composed of iron, which occurs in almost every major type of rock.

The most important ores of iron, from an industrial point of view, are the varieties of iron oxide, and iron carbonate. The sulphides of iron are difficult to work and considered uneconomical, except for the production of sulphuric acid.

As the rocks of the Scarborough district are sedimentary in origin, and have not been subjected to metamorphism in any way, the variety of iron ores that may be found in the area is limited to the following:

Haematite	(iron oxide)	Turgite	(hydrated iron oxide)
Limonite	(hydrous ferric oxide)	Siderite	(iron carbonate)
Goethite	(hydrous iron oxide)	Chamosite	(hydrated iron silicate)

The iron sulphides pyrite, and marcasite although occurring in the area are not considered on account of the sulphur content rendering them useless in the production of iron and steel.

Description of Iron Ores Concerned

1. Haematite.

Colour: red to brown
Hardness: variable up to 6.5 (see Moh's Scale of Hardness)
Streak: red to red-brown
Lustre: dull
Transparency: opaque
Fracture: rough
Cleavage: none

Occurrence: in veins, ore beds, or in layers along bedding planes usual in limestone
Formula: Fe_2O_3 (iron oxide)
% Iron: 70% with clay
Common form: reniform, massive, dense.

2. Limonite.

Colour: brown, yellow sometimes black
Hardness: variable 1 - 5.5
Streak: yellowish brown
Lustre: sub-metallic, silky, usually earthy.

2. Limonite (Contd.)

Transparency: opaque
Fracture: conchoidal (as glass)
Cleavage: none
Occurrence: alteration product of iron-bearing minerals. Is mainly responsible for the staining (red, brown and yellow) of many sedimentary rocks.

Formula: $Fe_2O_3\ 3H_2O$
% Iron 60%
Common form: dull, earthly, fibrous, oolite, bog iron ore. Often shows black glazed coating.

3. Goethite

Colour: black, brown, pale yellow
Hardness: 5.0 - 5.5 relatively constant
Streak: brown to brown yellow
Lustre: adamantine (as diamond) silky, frequently dull.
Transparency: translucent in thin splinters.
Fracture: rough
Cleavage: good; in one direction only (as coal)

Occurrence: formed by weathering near past and present land surfaces; disseminated in reddened sedimentary rocks.
Formula: Fe.).(OH)
% Iron: 62.9%
Common Iron: perfect crystals, but usually massive stalaytitic

4. Turquite

A relatively unimportant mineral of doubtful origin. Little known of its properties but it closely resembles limonite in appearance with which mineral it has close association. Distinguished from limonite in having red streak, and from haematite by containing water.

Formula: $Fe_2O_2 \cdot n H_2O$

5. Siderite (Chalybite)

Colour: very variable, pale yellow, buff, brown, grey, brownish black.
Hardness: 4.0 - 4.5 relatively constant
Streak: colourless. Weathered mineral, brownish black
Lustre: vitreous (as glass)
Transparency: translucent to opaque
Fracture: conchoidal (as glass)
Cleavage: perfect rhombohedral

Occurrence: in sediments as nodules, metasomatic replacement of limestone (Cleveland iron ore)
Formula: $Fe\ CO_3$
% Iron: 48.3% with small amounts of manganese, magnesium and calcium
Common form: granular, oolitic, cleavable, massive, mixed with clay minerals in concretions to give nodules of clay-iron stone.

6. Chamosite

Colour: greyish-green weathering brown
Hardness: 2 - 4 variable
Streak: yellow-brown
Lustre: dull
Transparency: opaque

Fracture: rough
Cleavage: none
Occurrence: as oolitic nodules in clays
Formula: $(Fe^{\cdot\cdot}Mg)_2\ (Al_2\ Si_2\ O_{10})_n\ (H_2O)$ approximately
Common form: oolitic

Iron ores containing 30% and upwards of iron are considered as economically profitable for smelting. But their value is of course dependent upon their situation and on other subsidiary, or gangue, minerals present. For example, Siderite containing 48.3% iron is often valued higher than Limonite and other richer iron ores on account of its association with lime, alumina and silica, often rendering it self-fluxing during smelting.

The majority of iron ores require processing to separate the sulphur, carbonic acid and water from the native ore, and this is normally done by roasting or calcining. Any iron ore which contains an excess amount of water, carbonic acid and particularly of sulphur will render that ore useless as a source of iron or steel.

Many iron ores, particularly the oxides, are worked for their value as pigments and hydrated ferric oxides (Limonite) give certain varieties of ochres, usually red and brown. The calcining of iron carbonate (Siderite) gives a wide range of red and brown ochres. Sienna and umber are obtained from alumina silicates containing iron and manganese. (Chamosite)

In the area covered, Robin Hoods Bay to Filey and inland as far as Ebberston, iron occurs commonly throughout the geological succession. Certain horizons however are extremely rich in the mineral and these have provided important sources or iron ore in the past.

As it will be necessary to refer to the geological succession, occurring in the Scarborough area, throughout this succession of papers on iron-ores, Table 1, of rocks in order of deposition with notes on lithological characteristics and mineral content, is included.

In dealing with the iron-ores of the Scarborough district, the area will be divided into a number of parts each corresponding with an O.S. $2\frac{1}{2}$" map (most of these are 10 kms. square), e.g. SE 88, SE 89, SE 98, SE 99, TA 08 sheets will all be dealt with and possibly others. A paper will be devoted to each of these O.S. sheets and will consist of a geological map showing the horizons and localities at which iron ores occur, a geological succession with iron ore horizons marked and descriptions of the varieties of iron ore noted in the region with analyses where possible.

Notes Concerning Descriptions of Iron Ore

Hardness

This is determined by a set scale (Moh's Scale) ranging from 1, the softest to 10, the hardest, and is classified according to certain standard minerals.

Hardness	Standard Mineral
1	Talc
2	Rock salt or gypsum
3	Calcite
4	Fluor-spar
5	Apatite
6	Orthoclase feldspar
7	Quartz
8	Topaz
9	Corundum
10	Diamond

Numbers 1 and 2 can be scratched easily with the finger nail.
Number 3 may be scratched with some difficulty by the finger nail.
Numbers 4 and 5 can be scratched easily with knife.
Number 6 may be scratched with some difficulty by steel.
Number 7 scratches steel.
Numbers 8, 9 and 10 will cut glass easily.

Streak

The streak of a mineral is the mark left when the mineral is rubbed over unglazed porcelain.

Cleavage

Cleavage is the natural plane along which the mineral breaks. Glass has no cleavage but coal cleaves along the bedding plane produced during fossilisation. Minerals cleave along planes of "weakness" in the crystal lattice of that mineral. Where no plane of "weakness" exists in the structure the mineral will break as glass (conchoidal).

TABLE 1. UPPER JURASSIC

KIMMERIDGE CLAY	Shaley blue-black clay with many fossils, chief minerals being selenite, or gypsum and pyrites. Has been worked for cement in some localities.

UNCONFORMITY

OSMINGTON OOLITE	Hard flaggy buff-coloured oolitic limestone with many fossils. Chief minerals, calcite and chert. Commonly worked for lime.
MIDDLE CALCAREOUS GRIT	Sandy limestone, in places almost a pure sand, very variable in thickness.
HAMBLEDON OOLITE	Massive buff-coloured oolitic limestone with many fossils. Calcite and chert abundant.
LOWER CALCAREOUS GRIT	Sandy limestone grading into arenaceous clays in places. Very variable in thickness and lithology. Fossils locally abundant. Calcite common with aragonite occurring occasionally.
OXFORD CLAY	Sandy clays and clay shales with few fossils. Thickness variable. Gypsum and calcite common with some pyrites.
HACKNESS ROCK	Thin blue-hearted ferruginous limestone; many eroded fossils. Siderite and some chamosite occurs with calcite.

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KELLOWAYS ROCK	Yellow ferruginous sandstone of variable thickness containing some fossil material. Limestone doggers occur at some horizons. Calcite and siderite occur frequently.
KELLOWAYS CLAY	Arenaceous mudstone present only on the coast. Little or no fossil material. Calcite and some glauconite occurs commonly.
UPPER CORNBRASH	Blue-hearted, compact limestone with a fossiliferous shaley base. Certain iron minerals are common. Very persistent in thickness and lithology.

UNCONFORMITY

ARCHAEOLOGICAL INDEX FOR NORTH-EAST YORKSHIRE, 1961-62

For a number of years an archaeological index of finds and sites has been maintained by the Scarborough Museum. The Scarborough & District Archaeological Society has co-operated in this scheme and, beginning with this issue, a brief record of archaeological activities and discoveries relating to all periods will be published in the Transactions each year. To enable this index to be as complete as possible it is requested that members will forward a short account of any field-work or excavation upon which they have been engaged or of any chance find that has come to their notice in North-East Yorkshire, to the Curator, Scarborough Museum. The latter is indebted to the following for information incorporated in the present index:- Messrs. P. Bland, R. H. Hayes, G. R. Pye, F. C. Rimington and J. Robinson.

The entries are arranged under the name of the civil parish in which they occur and the parishes are listed alphabetically.

ALLERSTON, N.R.

MANOR HOUSE. SE 878830
Excavations near Manor House Farm by Scarb.& Dist. Arch.Soc. under the direction of Mr.F.C.Rimington commenced in 1962 and continue. Small hall of the 13th or 14th century with later (probably 17th century) industrial development.

ALLERSTON/GOATHLAND/ETC. N.R.

LILIA CROSS, FYLINGDALES MOOR. SE 889986
Stone Cross previously transferred to Sil Howe near Goathland was re-erected on its original site of Lilla Howe in 1962.

BILSDALE MIDCABLE, N.R.

CABLE STONE DIKE, TRIPSDALE. NZ 5800
Trial trenches across this linear earthwork by Mr. R. H. Hayes and party, August 1962, produced profile but no finds.

BOLTBY, N.R.

BOLTBY SCAR PROMONTORY FORT. SE 506857
About two-thirds of this scheduled "Ancient Monument" were destroyed by the farmer in 1961. Mr. T. Lord of the Pigyard Museum, Settle, obtained Neolithic (Peterborough) pottery from the exterior of the earthwork after the destruction.

BROMPTON, N.R.

GALLOWS HILL. SE 952829
Flint leaf-shaped arrowhead found on surface. Presented to Scarborough Museum,1962.

EAST AYTON, N.R.

CASTLE GATE. SE 990852
Two kilns excavated at mouth of small cave by members of the Scarb. & Dist. Arch.

East Ayton. Castle Gate (Contd.)

Soc. directed by Mr. F. C. Rimington, early 1962. Probably part of 17th or 18th century fulling mill. Finds deposited in Scarborough Museum.

EBBERSTON, N.R.

BICKLEY MOOR. SE 919929
Flint barbed and tanged arrowhead found on surface, 1962. Presented to Scarborough Museum.

EGTON, N.R.

WADE'S CAUSEWAY. NZ 80
The survey of the Roman Road known as Wade's Causeway undertaken by Messrs.R.H. Hayes and J.G.Rutter, assisted by members of the Scarb.& Dist. Arch. Soc. and others, was completed in 1962. Extensive fieldwork was accomplished in 1961-62 between Amotherby near Malton and Aislaby and Goldsborough near Whitby, and excavations included the sectioning of the Roman Road near Hollin House (NZ 808001) and trial trenches at several points in the parishes of Egton and Hutton Mulgrave. (The publication of a report on this survey is in progress. It will form No.4 of the Society's Research Reports.)

HUTTON BUSCEL, N.R.

ANCAT FARM, SE 965861
Surface finds of three flint leaf-shaped arrowheads and of three barbed & tanged arrow-heads from field near Ancat Farm, 1961. Deposited in Scarborough Museum.

MOOR CLOSES, SE 960871
Petit-tranchet derivative flint arrowhead from surface of field, 1961. Deposited in Scarborough Museum.

HUTTON MULGRAVE, N.R.

BIRK HEAD, NZ 8210
Discovery of unrecorded linear earthwork about 1 mile long between NZ 822098 and 822112 by Mr. R.H. Hayes in 1962. Probably part of medieval deer-park boundary.

KILDALE, N.R.

PERCY RIGG, NZ 607118
Excavation of two circular Iron Age paved hut sites by Mr. R. Close in July and August 1962. Pottery of Iron Age B. character, pot-boilers and saddle quern found and are in the possession of the excavator.

KILHAM, E.R.

TA 0664 (exact find-spot unknown)
Polished stone axe from the collection of the late Colonel Sericold and purchased in 1869 was presented to the Scarborough Museum by the Reading Museum.

LEVISHAM, N.R.

LEVISHAM MOOR EARTHWORKS, SE 8392
Excavations on this earthwork complex by members of the Scarb. & Dist. Arch. Soc., directed by Mr. F. C. Rimington, were continued during September 1961 and May and September 1962. Work on Enclosure A ("The War Camp") was completed in 1961 and a large area of the adjacent Enclosure B was examined in 1962. Excavations at the

Levisham, N.R. Levisham Moor Earthworks (Contd.)

latter site continue in 1963. Enclosure B has produced a quantity of pottery of Iron Age character, rotary quern fragments and part of a glass bangle (1st-2nd century, A.D.)

LEVISHAM MOOR BARROW NO.2, DUNDALE RIGG. SE 831919
Excavation of round barrow by Messrs. R. Close and R. H. Hayes in May 1962 disclosed that it had been previously opened but scanty remains indicated a cremation burial in a central pit.

OLD BYLAND, N.R.

VALLEY VIEW FARM, SE 559859
Supposed site of 12th century abbey investigated by Messrs. R. Close and R. H. Hayes in Autumn 1961. Excavations produced 12th-15th century pottery and tiles associated with walls of a building of uncertain date.

PICKERING, N.R.

WEST FARM BARROW NO.1. SE 815865
Excavation of ploughed-down round barrow by members of Scarb.& Dist. Arch. Soc. under direction of Messrs.R.H.Hayes and J.G.Rutter, June 1961. Central pit previously opened. Fragmentary inhumations of at least eleven individuals, associated with Neolithic (Peterborough), corded Beaker and Middle Bronze Age wares. Two cup-marked stones also present. Finds in Scarborough Museum.

WEST FARM BARROW NO.2. SE 815865
Excavation of a second ploughed-down round barrow immediately to the N. of No.1 by same party, July 1961. Central pit previously opened. Middle Bronze Age overhanging-rim cinerary urn with cremation, probably a secondary burial. Finds in Scarborough Museum.

SCARBOROUGH, N.R.

ST. MARY'S STREET (Nos.4-9), TA 047889
Emergency excavation during rebuilding operations in February 1962 by Scarb.& Dist. Arch. Soc. directed by Mr. F.C. Rimington. Cess-pit with large quantity of 13th-14th century pottery, leather and animal remains. (For report on leather see Transactions No.5, 1962, 22-3) Finds deposited in Scarborough Museum.

CROSS STREET (adjacent to Boyes' Stores) TA 045888
Chance find during rebuilding operations in April 1962. Storage jar and four stoneware bottles of the 18th & 19th centuries. Presented to Scarborough Museum.

SEAMER, N.R.

CROSSGATES GRAVEL PIT. TA 030834
Excavations on the site of the Romano-British and Anglian settlement near Seamer Railway station have continued during 1961-62 by Mr. G.R.Pye assisted by members of the Scarb. & Dist. Arch. Soc. Additional plans of Anglian huts have been recovered together with pottery, iron (spearhead, key, knives) and bone objects and loom weights. Romano-British material includes pottery (chiefly 4th century) beads and querns. The excavations continue. (For account of earlier excavations see the Society's Research Report No.1) Finds in Scarborough Museum.

PASTURE LANE, TA 025828
Surface find of a flint petit-tranchet derivative arrowhead, 1962. Presented to the Scarborough Museum.

SNEATON, N.R.

HAXBY PLANTATION, NEAR SOULSGRAVE, NZ 893046
Surface finds from flint site include petit-tranchet derivative arrowheads, scrapers & knives, 1961. Presented to Scarborough Museum.

SNILESWORTH, N.R.

IRON HOWE, COW RIDGE, SE 5294
Survey of extensive cairn-group and ancient field system by members of Scarb. & Dist. Arch. Soc. and others under direction of Messrs. R.H.Hayes and J.G.Rutter, 1961 - 62. (For plan see A History of Helmsley (1963), fig. V).

SUFFIELD-CUM-EVERLEY, N.R.

INN MOOR, SUFFIELD MOOR, SE 988923
Surface finds from flint site in 1961-62 included arrowheads of leaf-shape, barbed and tanged, single-barbed and tranchet types, fabricators, scrapers and awls. Deposited in Scarborough Museum.

WEST AYTON, N.R.

AYTON CASTLE, SE 988851
Excavation by the Scarb. & Dist. Arch. Soc. under the direction of Mr.F.C.Rimington to the south and east of the existing "castle" revealed a complex of medieval buildings. Considerable quantity of pottery, iron, bronze and other objects of the 13th to 17th centuries obtained and deposited in Scarborough Museum. (A report of this excavation including a survey of the present castle is in progress and will be published in the Society's Research Report series).

WESTERDALE, N.R.

YOUNG RALPH CROSS, ROSEDALE HEAD, NZ 677022
Stone cross, probably 18th century broken by vandalism in 1961. Restored and re-erected by Ministry of Public Building & Works, 1962.

WYKEHAM, N.R.

RUSTON CARR, SE 960808
Perforated stone axe-hammer found on surface of ploughed field. Deposited in Scarborough Museum.

MAW RIGG, near Langdale End, SE 922935
Flint microlithic point and scrapers found on surface, 1962. Deposited in Scarborough Museum.

WYKEHAM GRANGE, SE 9585
Three flint leaf-shaped arrowheads found on surface of fields near Wykeham Grange, 1961. Deposited in Scarborough Museum.

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